

SUPPLEMENTARY INFORMATION

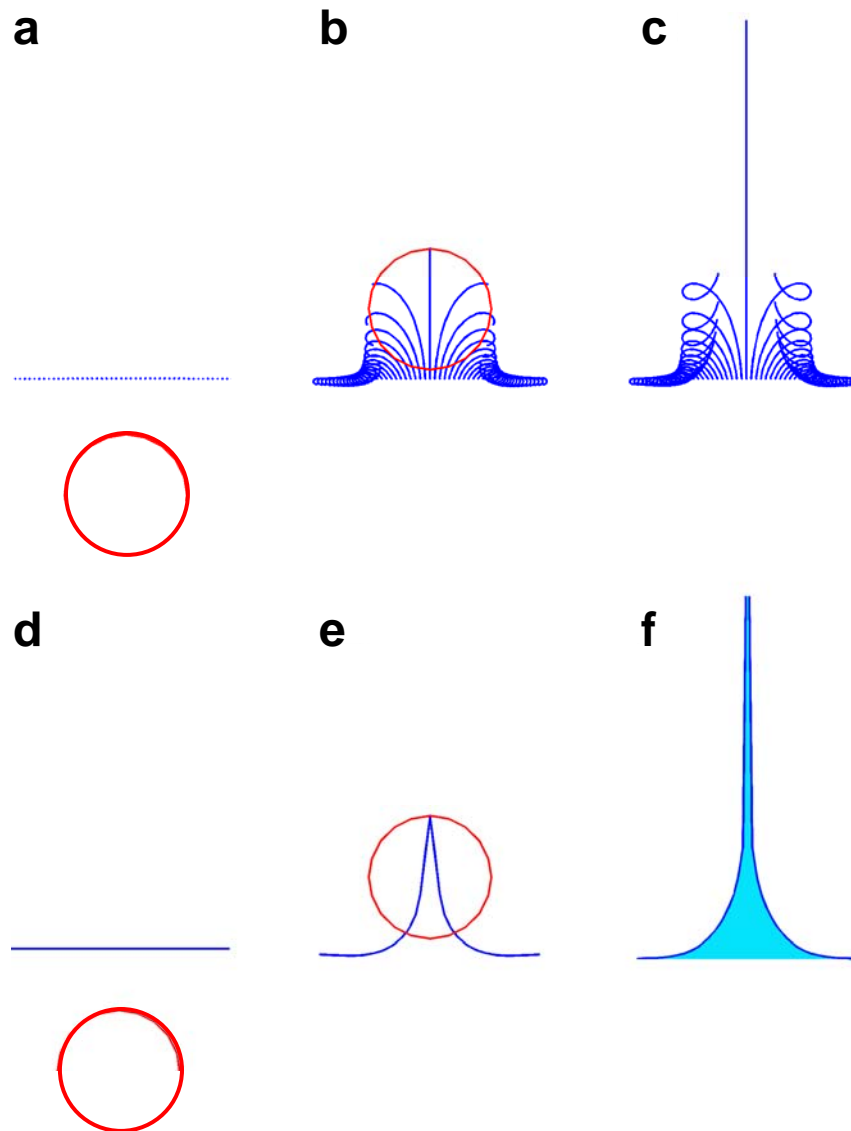


Figure S1. Simulation of induced fluid drift due to vertical migration of a sphere in inviscid fluid. **a**, Sphere (red circle) approaches initially planar surface from below. Tracked fluid particles are indicated by blue dots. **b**, Vertical drift of the fluid particles is induced as the sphere passes through the plane. **c**, Fluid particles exhibit looping trajectories as the sphere continues vertically. **d-f**, Corresponding vertical displacement of the plane defined by the tracked fluid particles. Note that only the vertical displacement is plotted. The drift volume is indicated in light blue in panel **f**. See also Supplementary Videos 1 and 2.